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## EDUCATIONAL WRITINGS

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The example of Germany has been held before the eyes of American school people as the model of success in industrial education. Not infrequently the descriptions which are given of the German trade schools are full of errors and altogether superficial. Professor Roman has cleared up many matters in his book.<sup>1</sup> He shows in a very interesting way how the trade school grew up in Germany, usually out of the Sunday school. He shows further the character of the present organization of these schools and their problems. Especially should it be noted that the dual school organization of Prussia is not universal and that the problem of religious instruction is one of the lively motives in keeping apart the two kinds of school for the common people.

It is not appropriate in a brief review to go into the details of description supplied by the book.

The second part of the volume reviews American experiments in industrial and commercial education and presents many interesting contrasts and comparisons with the schools of Germany.

The book will serve as a handbook for all who are interested in the problems of vocational education. It is more comprehensive than any other book in English on the German industrial schools and supplements Farrington's book on the commercial schools.

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The Russell Sage Foundation has put the schools of this country under new obligation by the publication of Dr. Ayres' measuring scale in spelling.<sup>2</sup> We note in passing that the Foundation has adopted a new form in which it will hereafter issue its studies. This is much more compact than the earlier pamphlet form and will be welcomed by librarians and book users as a much more convenient form to handle and keep on the book shelf.

<sup>1</sup> *The Industrial and Commercial Schools of the United States and Germany.* By Frederick William Roman. New York: Putnam, 1915. Pp. 382.

<sup>2</sup> *A Measuring Scale for Ability in Spelling.* By Leonard P. Ayres. New York: Russell Sage Foundation. Pp. 58.

As to the contents of the book, it may be said in a word that Dr. Ayres has ferreted out the thousand words in most common use in the everyday world and has by numerous tests arranged these in the order of increasing difficulty, marking off the points at which successive grades are found to miss different percentages of each list. The book will be the basis of spelling teaching in every school system. The method of setting up a scale is also most significant. There is no statistical elaboration of opinion at the bottom of this classification, but a systematic series of experiments with school children. The book is one which will be welcomed by practical teachers and by students of scientific methods.

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The most extensive study which has ever been made of a state system of normal schools is reported in a thick volume of 653 pages issued by the State Board of Public Affairs of the State of Wisconsin. This report<sup>1</sup> contains a great deal of material which was collected from all of the normal schools of the state. The material is of various types. Much of it is the personal views of presidents or other officers on matters which were covered by series of questions. There are maps showing the sections of the state from which students come and maps showing the distribution of graduates. There are reports of recitations heard in the various normal schools, in some cases stenographic reports. The courses of study, the training of teachers and distribution of their work, the organization of the normal school and of the practice school are among the important topics discussed.

The report describes the survey as a co-operative undertaking. The director of the survey was Mr. A. N. Farmer, who almost immediately after the completion of the report was employed by the State Normal School Board as a kind of general over-president of the whole system of the state.

The report contains a great mass of material. Scarcely anyone but the technical student of educational administration will read it through. The tables in the appendix and the maps and earlier

<sup>1</sup> *Conditions and Needs of Wisconsin's Normal Schools*. Report of Co-operative Survey by A. N. Farmer. Issued by the State Board of Public Affairs. State Printer, Madison, Wisconsin.

chapters will be consulted by anyone who wishes to get at details. The impression grows on one, however, as he tries to use the material, that there is very little organization and generalization. The very richness of the material is baffling.

It will be impossible to give in these pages an adequate account of all the facts covered. We shall have to be content to select here and there recommendations and statements of needs. Before turning to these extracts, however, it is appropriate to comment on the great need of intelligent general discussion of the problems of normal schools. These institutions have long been isolated from other higher institutions of learning, and there has not been such insistent demand made upon them that they organize themselves uniformly as there has been in the case of colleges and high schools. It is to be hoped that the Wisconsin survey marks the opening of a period of vigorous study of normal-school problems.

Significant comments may be quoted as follows:

Except in a few isolated instances, the normal schools have regarded their duty to the state as solely that of training a sufficient number of graduates to supply the demand of the state public-school system for teachers.

The experience and ability of normal-school instructors are now capitalized in helping the graduates already at work by inspection of their schools, and by helpful suggestion to the teachers through meetings, conferences, bureau correspondence, and preparation of bulletins.

Such field and extension work is not alone beneficial to the schools and teachers. It is of greatest benefit to the faculty members engaged in such work. It brings them into close and sympathetic relationship with public-school needs and problems. Effective work for the normal schools is impossible when the teaching force is unacquainted with actual school conditions.

The normal schools may be made centers radiating educational help to their territory. In two schools a beginning has been made. Otherwise little or nothing has been accomplished.

Each school works independently and frequently spends much time and effort upon problems which have been or are being successfully solved in other schools.

The following are given by way of illustration. Many others could be cited:

a) In one school there is in operation a system of field training in agriculture in connection with classroom work. The results are remarkable. The same plan could be adopted by other schools in similar lines of work; yet this work is hardly known to them.

b) In another school the results in teaching primary reading are rarely equaled anywhere. In some schools this same grade of work is exceedingly poor, yet there has been no plan by which the other schools might get the help they so much need.

Size and numbers have become an end in too many normal schools. Almost anyone is welcomed as a student, however poorly equipped. Once enrolled, instructors are often reprimanded if students who have shown themselves incompetent are failed, because students who have failed are likely to become discouraged and leave.

In four schools at least half of the instructors stated that standards of work had been materially lowered by the "craze for numbers." To this they attributed much of the poor preparation and extreme youth of students enrolled in the five-year and the rural-school courses. An analysis of the ages of 1,515 students who entered in September, 1913, shows that 189, or one-eighth, were 15 years old or less. Of these 21 were 13 or less, 75 were 14, and 93 were 15 years old. The opening of other normal schools is likely to result in greater competition than there is at present.

Many courses were offered, not because they fitted students for their future work as teachers, but because certain subjects were required for university entrance or for advanced credit. This is notably true of the courses in foreign languages.

The question is whether a normal school should weaken its teacher-training courses for the sake of gaining advanced credit for the relatively few graduates who later go to the higher institutions. At the present time the normal schools are seeking relief. They desire to be relieved from the necessity of giving courses which have nothing to do with preparing students to teach. The whole question is now pending. Until normal schools are free to formulate courses without reference to requirements of higher institutions of learning, they will be greatly handicapped in their work. It is the contention of the normal schools that two years' work beyond the high school, given by them for the purpose of training students to teach, should be recognized as an equivalent of two years of work in the colleges.

In seven out of eight normal schools this course has shown little increase since its establishment. In three of them it has already been discontinued.

Many faculty members of the normal schools of Wisconsin report that they have little incentive to do their best work in teaching. They are given slight encouragement to interest themselves in the study and solution of pressing educational problems.

The general attitude of faculty members, especially those who have been in the system for some years, is that of indifference. They point out that recognition and promotion depend almost entirely upon the personal relations

existing between instructors and presidents and that merit as shown by results accomplished has little to do with advancement. Many say that when they first came into the system they were ambitious to grow, not only by improving their own classroom work, but by taking an active interest in the educational progress of the state. They further add that attempts to do outside work even in the communities where they live were looked upon with disfavor; and gradually they settled down to the dull routine of their daily work.

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The Carnegie Foundation has devoted itself up to this time to problems of higher education. In canvassing the various professional schools, however, the Foundation has finally come in contact with elementary education. The training of teachers is the special problem upon which the attention of the Foundation has been focused and President Pritchett's comments on this problem are significant.<sup>1</sup> He writes as follows:

The training of teachers in some form constitutes the capital factor in the success of what is financially and socially the major undertaking of every community. It is a problem of enormous bulk. At the same time it differs from the same problem in such professional fields as law, medicine, and engineering in that among elementary- and secondary-school teachers professional consciousness is nearly lacking. No organized group of teachers speaks, plans, or labors authoritatively for the profession as a whole. Such state or national associations as exist are huge, vaguely constituted aggregates, wholly lacking in definition of aim and membership. Under such conditions the real problems of the teacher cannot focus sharply and be clearly understood by the teachers themselves in their collective capacity.

This lack of professional consciousness is due undoubtedly to the meager training usually required, as well as to the casual and temporary nature of the employment under the conditions prevailing in America. All of these elements unite to place the teacher in marked dependence upon local provision and circumstance; individual initiative is discounted, and reliance is placed upon a more or less readily regulated "supply" of passive-minded instructors.

It is this localized character of the task of preparing teachers that has finally determined the form of the contribution which the Foundation hopes to make to this subject. Little by little the states of the nation are realizing the oneness of the educational undertaking which faces them, and are discovering that they can expect to cope successfully with it only by creating a skilful and mobile central educational authority to operate and control the entire undertaking. Of this great single educational enterprise in each state, the portion that is most vital, that overtops all else in its decisive importance,

<sup>1</sup> *The Carnegie Foundation for the Advancement of Teaching*. Ninth Annual Report of the President and of the Treasurer. 1914. Pp. 154.

is that of selecting and training teachers. The solution of the state's problem as a whole is measured largely by the solution of this portion of the problem. It is emphatically a state task today, and will doubtless permanently remain so.

It would seem most helpful, therefore, for the Foundation to approach the question from a standpoint as nearly as possible identical with that of the state itself. If it can succeed in a few states, or in one state, in appreciably illuminating the situation in its legislative, administrative, and institutional aspects, the results should prove of value not only for the particular state concerned, but by analogy for all states possessing similar conditions.

The indirect consequences of the investigation on which the Foundation has entered ought to be far-reaching in importance. There ought to be a vivid arousal of the self-consciousness of normal schools and of the teaching profession in general.

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The Chamber of Commerce of Cincinnati has undertaken to make a general industrial survey of that city. The first outcome of this survey is a monograph of 141 pages<sup>1</sup> on the printing trades. It contains a detailed description of the trades, of the conditions existing in the different printing establishments, and of the different methods of educating printers. It contains also a summary of the courses in printing and allied trades in Cincinnati schools and in the schools of several other large cities, together with recommendations as to the future education of printers.

The survey was conducted by means of questionnaires and by personal interviews. The questionnaires to the employers bore inquiries like the following: "What occupations in your shop involve peculiarly unhealthy conditions?" "What occupations narrow and restrict mental and manual development?" "Does the worker receive any instruction or training in your establishment more than what he can pick up on the job?"

The questionnaires to the employees contained the following and many similar queries: "How many years in the printing business?" "Age at which you began to learn the trade. Age at which you believe beginners should begin. Why?" "At what age did you leave school?" "What grade did you reach?"

<sup>1</sup> *Industrial Survey of Cincinnati, Vocational Section: Printing Trades*. Published by the Cincinnati Chamber of Commerce. Review supplied by Superintendent Howard C. Storm.

Here are a few sample questions from the questionnaire sent out to the schools outside of Cincinnati: "How much time per week do students give to printing?" "If academic work is given, what is the influence of the work in printing on academic work?" "What is the attitude of the local union toward the school?"

The scope and nature of the information supplied are further indicated by the following headings: "Number of Workers Required Each Year in Various Occupations of the Allied Printing Trades of Cincinnati," "Description of Occupations," "Vocational and Pre-vocational Education in Cincinnati Public Schools," "Rules of the Cincinnati Printing Pressmen's Union No. 11 in Regard to Apprentices," "Partial List of Cities in Which Printing Is Taught in the Public Schools."

The committee encountered some difficulty in getting information from as many of the employees and employers as it desired. There are about three thousand employees in printing and allied trades in Cincinnati and returns were received from only 234. This is less than 8 per cent. One reason for this failure to secure complete returns was the lack of co-operation of local unions and of workmen in union shops. The scope of information from employers was more satisfactory. From 219 selected firms, 62 "fairly complete" reports were received. This is a much larger proportion than is usually covered by surveys of this nature.

The committee gives a summary of recommendations and a résumé of principal findings on the first five pages of the report. Some of the interesting items are as follows: "Establish a half-time co-operative high-school course for beginners in the printing industry when there is a demand for it." "Organize the public school for co-operation with the shop." "On the whole, the printing industry offers good opportunity for the boy who wants to learn a trade and is adapted for this work." "There is but little organized effort by employees to see that beginners are properly instructed." "The shop is failing in its duty toward the beginner." "Nothing less than completion of the eighth grade of the elementary school will suffice for success in the printing trades." "A system of vocational guidance which embodies economic and ethical instruction of such a nature as to inspire the boy with correct ideals concerning



his relation to the job would be welcomed by the employers and would be of undoubted value to the boy himself." "There has appeared no worthy argument in favor of a trade school which is supposed to turn out skilled workmen."

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Arithmetic is in process of change. The formal abstract work which a generation ago was thought of so highly is passing out. The very words "formal" and "abstract" are accepted as terms of criticism. What is to happen is hard to predict. There are those who would reduce arithmetic to its lowest limits or abandon it altogether. Others would readjust the material, cutting out the more abstract and formal parts. It is to be noticed that most of the assaults on arithmetic are able to show in detail possibilities of revision in the early stages of instruction in the subject. Primary arithmetic can be stripped of some of its abstractness and some of its formalism.

Two books that make the attempt to be more concrete than usual<sup>1</sup> exemplify two different directions in which the experiment may move. Miss Alexander has introduced pictures of familiar objects and has outlined many play exercises which are very attractive. After introducing these concrete exercises the formal tables and combinations are gradually worked in. Mr. Colwell has given less of the play spirit to his exercises. The concreteness of his problems is derived from the constructions through which he carries the pupil. He uses space relations liberally in developing number ideas.

It is clear as one goes through these books that the abstractness and the formalism of arithmetic do not disappear. The use of numbers is in the long run economical and effective just because numbers are abstract and serve to shorten processes of thought. The introduction to number should be made concrete and these books are distinct contributions in this respect. In the further study the pupil should be led to abstract. Both books recognize this demand in a very practical way.

<sup>1</sup> *The Alexander-Dewey Arithmetic*. By Georgia Alexander. Edited by John Dewey. New York and Chicago: Longmans, Green, & Co., 1914. Pp. 300.

*Illustrated Arithmetic on a Constructive Basis*. By Lewis W. Colwell. Chicago: H. M. Dixon & Co. Pp. 203.

The following quotations from Mr. Colwell's introduction show the character of his work:

Because the writer believes that more can be done than usually is done toward preparing pupils for appreciation of mathematical truths, he has been persuaded to indicate in the following exercises some of the activities in putting and placing, in shaping and ordering, in creating and conceiving, in handling and visualizing, by which the growing sense for quantity, common, in some degree, to every human being, may be cultivated and improved.

Paper-folding and paper-cutting exercises, building, ruling, separating, joining, estimating, measuring, and counting may be combined in the production of ideas of quantity. Such ideas are embodied in representative imagery possessing shape and size as well as relations of shape and size. That knowledge of number which is derived from counting separate individuals as it is usually developed to introduce beginners to arithmetic is altogether insufficient for all except those favored pupils who are born with the number instinct. But lines, rectangles, cubes, and oblong solids may be freely handled, divided, and assembled so as to exhibit the primary number values in clear and adequate form and in a refreshing variety of ways. It is hoped that the occupations which are here suggested shall but open the way to a fruitful but little frequented field.

The most elementary computing depends upon the possession of certain number habits or reactions, which are so well recognized by educators generally that they have been gathered into tables, and upon these tables much attention has been concentrated. Here there is danger that, in our eagerness to teach these very necessary forms, we shall overlook the substance that they only signify. It is highly important that work with figures and the drills upon those figure associations that are known as the addition table, the multiplication table, etc., shall not be begun until they have been needed by the pupil, furnished by the teacher, and used by both as a language to express what has been seen, felt, and adequately apprehended independent of figures.

The following extracts from Miss Alexander's preface will make clear her purposes:

The fundamental feature of this series of texts is that every numerical idea is introduced by means of a concrete situation familiar to children and involving a problem that stimulates the exercise of thought. The situations chosen are such as appeal to the strongest instinct of childhood—the instinct for action. The appeal is always to the imagination and in many cases involves dramatization. The purpose is not to add an artificial interest to what otherwise might be uninteresting, but to lead the pupil to grasp the situation mentally before he begins to manipulate figures. He must think before he figures, and his figuring, whether mental or written, is guided by an idea of why he is to figure and what he is to figure for. . . .

Pains have been taken to avoid triviality in the selection of situations and to choose such as involve actual number relations. Arbitrarily to hitch numbers to matters that are "interesting" but not numerical is to fool children, instead of making them think. Fortunately a wide variety of real experiences is available: familiar household occupations, simple shopping expeditions, the needs of the schoolroom, plant and animal life, games and play, personal associations. The child's literary life also furnishes material: Mother Goose for the little children, Aesop's fables for the next older, finally, geography and history. . . .

The number ideas gained through this social introduction are not left to their own fate. Pains are taken to make them definite and permanent, and to secure skill in the use of number relations. Every concrete situation is followed by quick or "flash" practice in number as number. It should be borne in mind, however, that vivacity including definiteness of original apprehension is an excellent substitute for a large number of later repetitions, the two being, indeed, in inverse ratio. In the early grades connection is made between the concrete situation and the pure number by means of constructive work with sticks or other individual counters, with group counters, and with designs upon squared paper. These are supplemented by numerous illustrations in the text itself.

The written symbol accompanies the oral from the first. In the educational movement away from merely mechanical and abstract work, written symbols have too frequently been banished for two or three years of school work. When the pupil has the idea, he has the right to the form which embodies it. . . .

The test of any knowledge is the power to use it in new situations. In this arithmetic after an idea has been introduced through a social situation and fixed through daily practice, it is applied to new social situations.